

A Huge Renal Mass With Uncommon Pathology of Leiomyoma

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ABSTRACT

Leiomyomas are benign mesenchymal tumors that arise from smooth muscle cells anywhere in the body. Renal leiomyoma is a rare condition. The authors report the case of a woman with a huge right-sided renal mass that was incidentally found.

INTRODUCTION

Leiomyomas are benign mesenchymal tumors that arise from smooth muscle cells anywhere in the body. The most common sites reported are from the uterus, intestines, and skin. Renal leiomyoma is a rare condition. It may arise from the renal capsule, muscularis of the renal pelvis, or vascular smooth muscle of the kidney. The authors report the case of a woman with a huge right-sided renal mass that was incidentally found.

CASE REPORT

A 43-year-old woman was evaluated for the etiology of hypertension. Abdominal ultrasonographic imaging was performed. It showed an incidental 14 cm solid mass that arose from the lower pole of the right kidney. A computed tomography (CT) scan revealed a 14 cm x 13 cm x 15 cm exophytic, sharply defined, solid mass that contained necrotic and cystic focal points (Figure 1). There was no sign of lymphadenopathy.

Casoni's skin test and indirect hemagglutination test (IHA) were performed for a possible hydatid cyst that had cystic

appearance; negative results were detected. There was no microscopic or macroscopic hematuria from the basic urine test. Because of hypertension, the authors looked for urine catecholamines in a 24-hour urine collection; it was within normal limits.

The authors decided to perform open surgical exploration. During the operation, they observed a 24 cm x 15 cm x 10 cm well-circumscribed, albescent-flavescent, exophytic solid tumor that arose from the lower pole of the right kidney (Figure 2). When the frozen section was examined, the mass appeared to be spindle-cell leiomyoma. Open, nephron-sparing surgery was performed.

Gross examination revealed a 24 cm x 14 cm x 7 cm tumor originating from the renal capsule. Cross-sectional examination revealed a solid tumor that contained small cysts and necrotic foci. Microscopic examination showed that the tumor was surrounded by a thin capsula, interlaced with spindle cells and smooth muscle filaments with focal degeneration. There was no mitotic activity or atypia. Immunohistochemical study confirmed leiomyoma, with actin (+), HMB45 (-), S100 (-), CD117 (-), CD34 (+) (at the vascular endothelium) (Figure 3; Figure 4).

KEYWORDS: Leiomyoma; Kidney; Benign tumor

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Abbreviations and Acronyms

CT = computed tomography
USG = urine-specific gravity

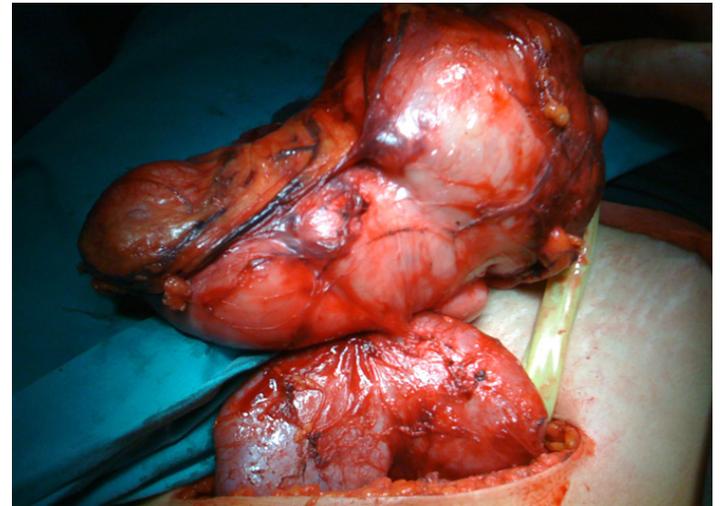
Figure 1. Computed Tomography Image of the Leiomyoma Tumor.

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Figure 2. Intraoperative View of the Leiomyoma Tumor.

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The patient was evaluated 1 month following surgery. She had no symptoms. Her creatine level was 0.9 mg/dL and she had normal urine-specific gravity (USG).

DISCUSSION

Leiomyoma is a benign tumor arising from smooth muscle tissue. It was first defined by Virchow in 1854 [1]. Leiomyoma can be found anywhere in the body, including the urogenital

system, renal pelvis, ureter, bladder, prostate, seminal vesicles, urethra, spermatic cord, and penis. However, the renal capsule location (seen in the present case) is the most common source [2-4].

Because of the small size of the leiomyoma, it is usually determined in an autopsy series. Xipell [5] studied 250 autopsies and found that the frequency of leiomyoma was 5.2%. The results also revealed that leiomyoma has 3 types: (1)

Figure 3. Benign Mesenchymal Tumor Consisting of Fusiform Cells (Hematoxylin and Eosin Stain, x 400).

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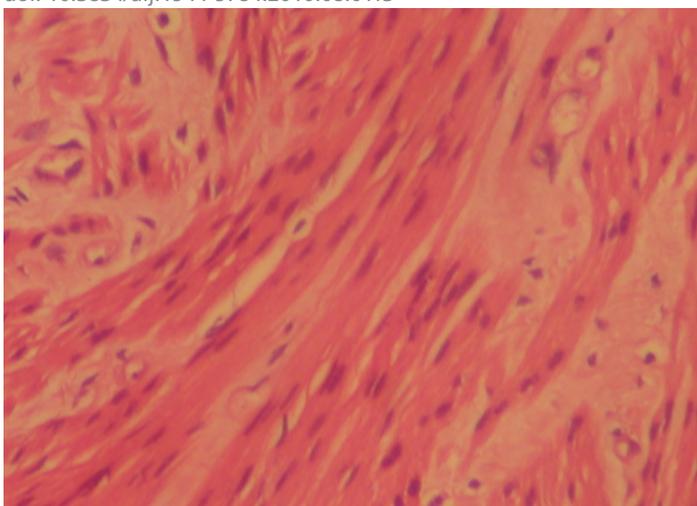
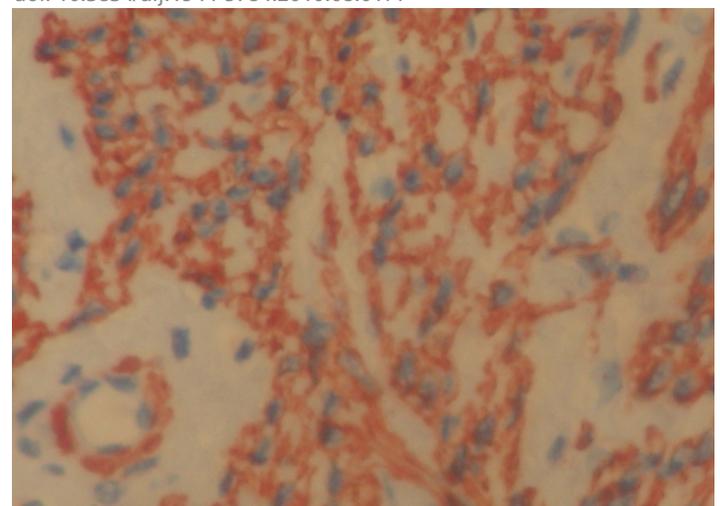


Figure 4. Results of the Immunohistochemical Study (Actin, x 150).

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Internal actin positivity in the smooth muscle cells of the arteriole wall (bottom right corner)

small subcortical lesions that are detected incidentally during autopsy or surgery; (2) lesions arising from the renal pelvis; (3) giant masses arising from the renal capsule or blood vessels, as seen in the present case. Xipell reviewed 30 cases of leiomyoma where the diagnostic method was known and found that 50% of the patients had been diagnosed on the basis of a palpable mass, 20% of the patients had hematuria, and the remaining 30% of the patients had been identified incidentally (as in the present case).

Leiomyoma has been found in patients with suppressed immune systems due to the Epstein-Barr virus [6]. Tsujimura et al [7] revealed the relationship between tuberous sclerosis and leiomyoma. Immunosuppression and tuberous sclerosis findings were not available in the present case.

Incidental diagnosis of kidney leiomyoma has increased due to widespread use of radiological methods such as ultrasonography and CT [8]. Tomographic studies have reported that renal leiomyomas have a variable radiographic pattern, ranging from purely cystic to mixed solid and cystic to an entirely solid lesion. Renal leiomyomas are usually sharply demarcated from their surroundings [2]. Both benign and malignant renal masses (eg, renal cell carcinoma, angiomyolipoma, oncocytoma, low-grade leiomyosarcoma) should be considered in the differential diagnosis of leiomyoma. It is not possible to make a distinction between these lesions radiologically. Although taking a percutaneous biopsy accompanied by radiological imaging is sufficient for microscopic diagnosis and immunohistochemical staining, taking a biopsy of the renal mass is still controversial [9]. The authors decided to do surgical exploration in the present case. Although radical surgery is commonly chosen for these patients because of high malignancy risk, renal-conserving surgery is applied in some select cases [8-10]. In the present case, the mass was removed while preserving the kidney. This was done because of the findings during surgery and because spindle cells were detected when the frozen section was examined, which is usually diagnostic for leiomyoma.

CONCLUSIONS

Renal leiomyoma is a rare benign tumor. It is not possible to differentiate leiomyoma from malignant lesions using the present diagnostic imaging techniques. This patient population typically undergoes radical nephron-sparing surgery, so the definitive diagnosis can usually be made intraoperatively without a separate biopsy procedure.

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